MATERIAL SET 11

CHAPTER 3

Working Capital Management

Section - I

INTRODUCTION TO WORKING CAPITAL MANAGEMENT

A Introduction

There is two types of assets in each business, such as—fixed assets and current assets. The capital which is invested in fixed assets is called **Fixed Capital.** On the other hand, the Capital which is invested in current assets is called **Working Capital**. In this chapter we shall discuss about Working Capital.

B Definition of Working Capital

The capital which is invested in current assets is called Working Capital. The factors of production, such as—raw materials, labour etc. are procured with the help of this working capital. Goods and services are produced by using these factors. The working capital which is used for making payment for the factors of production retrieves back by way of sale of goods and services. In this way, the working capital is rotated continuously in the business in a circular form. So, it is called Circulating Capital also. Different experts have defined working capital in different ways. A few of such definitions are given below :

According to **Shubin**—*Working capital is the amount of funds necessary to cover the cost of operating the enterprise.*

According to **Gerstenberg**—*Circulating Capital means current assets of a company that are changed in the ordinary course of business from one form to another; as for example, from cash to inventories, inventories to receivable, receivable into cash.*

On the basis of above discussion, it can be said that—

The circulating capital which is needed for conducting day-to-day activities of the business is called working capital.

C Nature of Working Capital

The capital which is needed for conducting day-to-day activities of the business is called **Working Capital**. The factors of production, such as—raw materials, labour etc. are procured with the help of this working capital. Goods and services are produced by using these factors and again working capital is raised through the sale of manufactured goods and services. In this way the working capital is rotated continuously in the business in a circular form. Thus **the working capital is circulating in nature.**

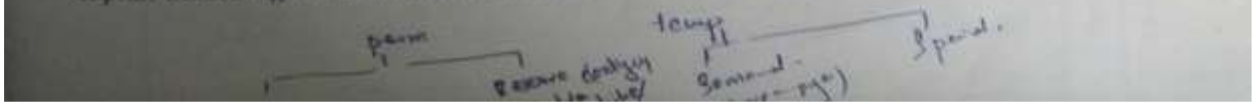
It is found from the working capital cycle that outflow of cash takes place from one side

of the working capital cycle and inflow of cash takes place from the other side. So, it is clear from this cycle that **the working capital is rotated like a cycle through inflows and outflows of cash.**

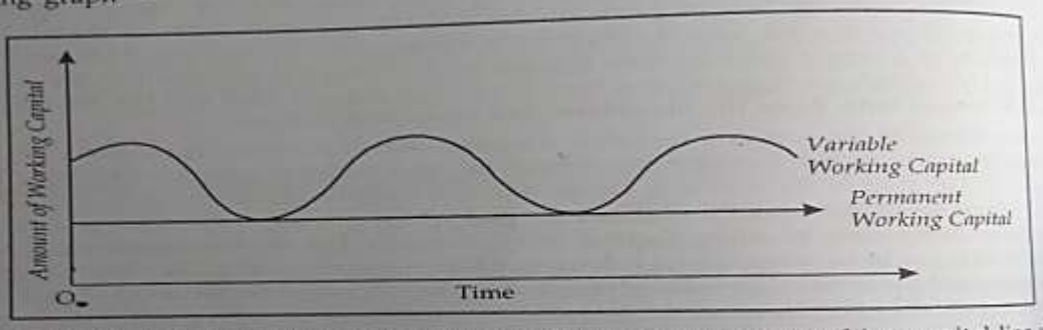
The normal day-to-day expenses concerned with the production, and purchases and sales are called **Operating Cost**. For example, Purchase of raw materials, payment for wages, payment for electric bill etc. are operating costs. These costs are met with the help of working capital. Thus, it can be said that **the working capital helps to meet the operating costs of the firm.**

A part of the capital raised from the long-term sources is invested in fixed assets and the other part is invested in current assets. The part which is invested in current assets is called working capital. Current Assets refer to those assets which can be converted into cash in the ordinary course of business within one year without disrupting the operations of the firm. For example, Inventory, Debtors, Bills Receivable, Marketable securities, Cash and Bank balance etc. are current assets. But the working capital is financed not only from the long-term sources, it can be financed also from the short-term sources. For example, working capital (Inventory) can be procured through purchase of goods or raw materials on credit from the suppliers. If the working capital is procured from the short-term sources, then the amount of current liabilities (creditors) raises. Current liabilities refer to those liabilities which are paid within one accounting period out of current assets or incomes from business. Thus, it is clear that **the working capital can be financed both from the short-term and long-term sources.**

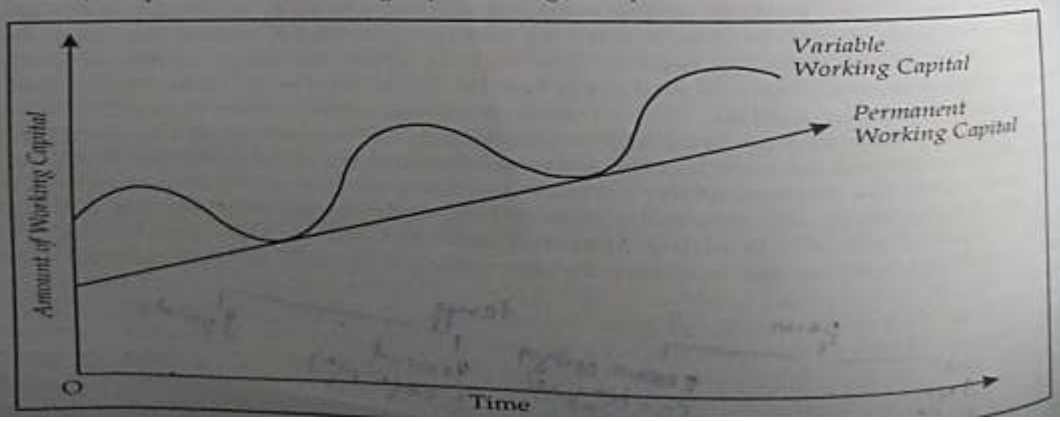
If the nature of the working capital is analysed, then it is found that a part of it remains invested regularly in the business throughout the year and the other part remains invested irregularly. The part of the working capital which remains invested regularly in the business is called **Permanent Working Capital and the part** which remains invested irregularly is called **Variable or Temporary Working Capital.** In other words, **The minimum amount of working capital which has to be maintained throughout the year for ensuring the effective use of the fixed assets and the rotation process of the current assets is called Permanent or Fixed Working Capital.** Again, the permanent working capital can be divided into two parts, such as—Regular Working Capital and Reserved Working Capital. **The portion of the permanent working capital which is needed for ensuring the rotation process of the current assets through the conversion of cash into raw-materials, raw-materials into finished goods, finished goods into trade debtors and trade debtors into cash in a continuous way, is called regular working capital.** On the other hand, **The portion of the working capital which is maintained for supporting the contingent and uncertain conditions like sudden price hike, strike, business depression etc. is called Reserved working capital. The portion of the working capital which is needed for meeting the seasonal demand and some special situational requirements is called variable or Temporary working capital.** The variable working capital may be further classified as Seasonal Working Capital and Special Working Capital. **The portion of the variable working capital which is needed for meeting the seasonal demand is called Seasonal Working Capital.** On the other hand, **the portion of the variable working capital which is needed for financing special operation, such as—extensive marketing campaigns, experiments with products, carrying of special job etc. is called Special Working Capital.** The classification of working capital according to its nature is shown below with the help of the following diagram—



The nature of Permanent and Variable Working Capital are shown below through the following graph—



It can be mentioned in this regard that though the permanent working capital line should be horizontal but sometimes it may not be horizontal. In the case of an expanding firm, generally the demand for current assets gradually increases immediately with the increase in activity level. In such a case, the permanent working capital line goes upward as shown in the following graph—



D Concept of Working Capital

There are two major concepts of working capital — (a) Balance Sheet Concept and (b) Operating Cycle Concept. These are discussed below one by one :

(a) **Balance Sheet Concept :** According to the balance sheet concept, there are two concepts of working capital. These are :

(i) ***Gross Working Capital Concept*** **:** The capital which is needed for conducting the day-to-day expenditures of the business, is called Working Capital. As the day-to-day expenditures of the business are met by the current assets, economists like **Mead, Malott, Baker, Field,** etc. consider that the sumtotal of all the current assets employed in the business is the **Gross Working Capital.** According to this concept, the amount of working capital increases as the amount of current assets increases and vice-versa. Current assets refer to those assets which are needed in the ordinary course of business and can be converted into cash within a short period (generally, within a year) without disrupting the operations of the business. Stock-in-trade, Sundry Debtors, Bills Receivable, Marketable securities, Prepaid expenses, Accrued income, Cash in hand, Cash at bank etc. are the different components of current assets.

On the basis of above discussion, it can be said that the sumtotal of all the current assets employed in the business is called the **Gross Working Capital** *i.e.*, **Working Capital = Σ Current Assets.**

(ii) ***Net Working Capital Concept*** **:** According to the net working capital concept, the difference between the total current assets and total current liabilities is the **net working capital** *i.e.*, **Net Working Capital = Σ Current Assets – Σ Current Liabilities.** We can make the following three views about the net working capital from this equation :

Firstly, if the value of total current assets is equal to the value of total current liabilities, then the amount of working capital is zero *i.e.*, **if Σ Current Assets = Σ Current Liabilities, Net Working Capital = Σ Current Assets – Σ Current Liabilities = 0.**

Secondly, if the value of total current assets is more than the value of total current liabilities *i.e.*, **if Σ Current Assets > Σ Current Liabilities,** then the net working capital is positive. So, it can be said that if the value of total current assets is more than the value of total current liabilities, then the balance available after subtracting the total current liabilities from the total current assets will be the positive working capital. If the net working capital is positive, then it is to be understood that there is more amount of current assets in the business than the current liabilities. So, it is clear that the excess current assets over the current liabilities has been financed from the long-term sources. Again, the excess of current assets over the current liabilities is the net working capital. Thus, it can be said, what amount of current assets has been financed from the long-term source is understood by the net working capital concept. For example, suppose a firm has current assets of ₹ 50,000 and current liabilities of ₹ 30,000. In this case, it is clear that the current assets to the extent of ₹ 30,000 has been financed from the current liabilities and the balance *i.e.*, the net working capital of ₹ (50,000 – 30,000) or, ₹ 20,000 has been financed from the long-term source.

Thirdly, if the value of total current assets is less than the value of total current liabilities, *i.e.*, **if ΣCurrent Assets < ΣCurrent Liabilities,** then the net working capital is negative. So, it can be said that if the value of total current liabilities is more than

the value of total current assets, then the excess amount of current liabilities will be negative working capital. If the net working capital is negative, then it is to be understood that the entire amount of funds which has been procured through the creation of current liabilities has not been invested in the current assets. In this case it is to be understood that the funds, which is equivalent to the excess of current liabilities over the current assets, have been invested in fixed assets. As for instance, a firm has current assets of ₹ 50,000 and current liabilities of ₹ 60,000. In this case ₹ 50,000 and ₹ 10,000 have been invested in current assets and fixed assets respectively out of the short-term financing *i.e.*, current liabilities of ₹ 60,000. The concept of net working capital is more useful than the gross working capital concept. The arguments which can be presented with respect to the net working capital are :

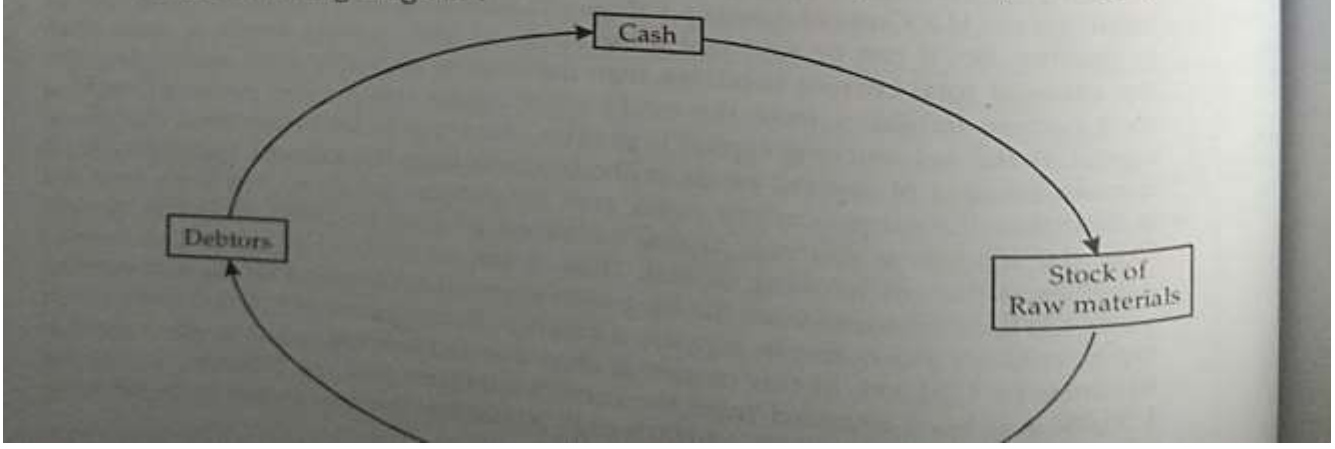
Firstly, *it is a qualitative concept, because it helps to measure the ability of the firm to meet its operating costs and short-term liabilities.*

Secondly, *the margin of safety of the short-term creditors can be known with the help of this concept. The more the amount of net working capital, the more is the margin of safety to the creditors.*

Thirdly, *what amount of current assets has been financed from the long-term source is known from this concept.*

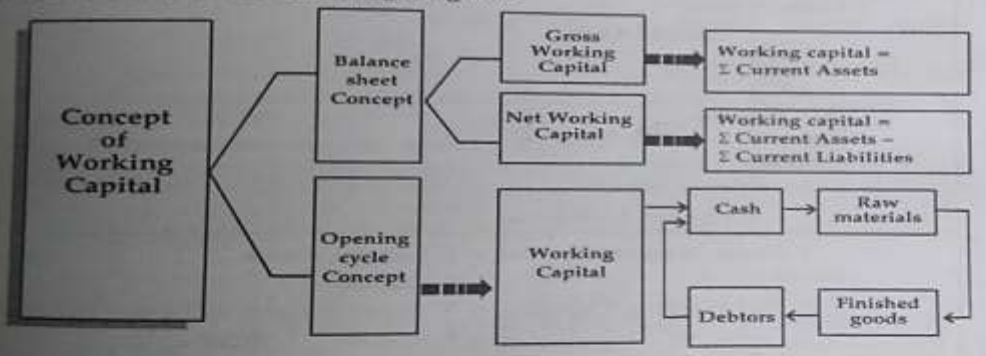
Fourthly, *it gives a clear idea whether any portion of the funds raised from current liabilities has been invested in fixed assets or not.*

(b) Operating Cycle Concept : According to this concept, the sumtotal of the expenditures which are incurred in order to perform the operational activities, is the working capital. Operational costs refer to the cost of raw materials, labour cost and overheads. Raw materials are purchased out of cash which is invested at the initial stage of the business, finished goods are produced by converting the raw materials with the help of labour and overheads. Debtors are created through the sale of finished goods on credit and again cash is generated when debts are realised from the debtors. This process is rotated repeatedly. Thus the sumtotal of the operating costs which are required to be incurred in order to perform an operating cycle is the working capital. An operating cycle is shown in the following diagram :



Stock of Finished Goods

The above diagram shows that the opening cash is again converted into cash through various stages. The costs which have to be incurred for procuring the required quantity of a factor in these stages, is the required working capital for that factor. Suppose, raw materials remain in store on an average for 2 weeks, finished goods remain in store on an average for 3 weeks (as a result of it, raw materials remain block in the finished goods for 3 weeks) ; and period of credit allowed to debtors is 4 weeks (as a result of it, raw materials remain block to the debtors for 4 weeks). Thus, in this case, working capital will be needed for the raw materials on an average for (2 + 3 + 4) or 9 weeks. Now, if raw materials are available from the creditors on credit for 2 weeks, then the net working capital will be required for procuring the raw materials on an average for (9 – 2) or, 7 weeks. Now, let ₹ 5,000 is needed in each week for raw materials. Thus, total ₹ (5,000 × 7) or ₹ 35,000 will be required for the raw materials. Similarly, if working capitals are required for wages and overhead on an average for 5 and 4 weeks respectively, and labour cost per week is ₹ 3,000 and overheads per week is ₹ 2,500, then ₹ (3 × 5,000) or, ₹ 15,000 and ₹ (4 × 2,500) or ₹ 10,000 will be required for wages and overhead respectively. Thus, in this case, the total operating cost required to complete one cycle is ₹ (35,000 + 15,000 + 10,000) or ₹ 60,000. Thus, ₹ 60,000 is the required working capital for a single cycle. The concepts of working capital is shown below with the help of the following diagram :



Classification of Working Capital

Working Capital may be classified into two ways, such as—Concept-based Classification and Time-based Classification. These are discussed below :

1. **Concept-based Classification :** According to the concept, the working capital is of two types. These are—

   a. **Gross Working Capital :** The sumtotal of all the current assets employed in the business is called **Gross Working Capital**. That is—

   Gross Working Capital = Σ Current Assets

   b. **Net Working Capital :** The difference between the total current assets and total current liabilities is called **Net Working Capital**. That is—

   Net Working Capital = Σ Current Assets – Σ Current Liabilities.

Gross and net working capital is shown below with the help of the following example—

❑ **Example :** A firm has the following Current Assets and Current Liabilities : Stock—₹ 40,000 ; Debtors—₹ 30,000 ; Bills Receivable—₹ 15,000 ; Marketable Securities—₹ 20,000 ; Cash at Bank—₹ 10,000 ; Cash in hand—₹ 5,000 ; Creditors—₹ 20,000 ; Bills Payable—₹ 15,000 ; Provision for taxation—₹ 10,000 ; Proposed Dividend—₹ 22,500 ; Outstanding Expenses—₹ 2,500.

Calculate Gross and Net Working Capital.

• **Solution ⇒ Statement showing Gross and Net Working Capital**

Particulars	*Amount* ₹
Current Assets :	
Stock	40,000
Debtors	30,000
Bills Receivable	15,000
Marketable Securities	20,000
Cash at Bank	10,000
Cash in hand	5,000
Σ Current Assets	**1,20,000**
Current Liabilities :	
Creditors	20,000
Bills Payable	15,000
Provision for Taxation	10,000
Proposed Dividend	22,500
Outstanding Expenses	2,500
Σ Current Liabilities	**70,000**

1. **Gross Working Capital** = Σ Current Assets
   = **₹ 1,20,000**
2. **Net Working Capital** = Σ Current Assets − Current Liabilities
   = ₹ 1,20,000 − ₹ 70,000
   = **₹ 50,000.**

Net working capital may be of three types, namely—

(i) **Positive Working Capital :** If the value of total current assets is more than the value of total current liabilities, then the excess amount of current assets over the current liabilities is called Positive Working Capital. That is—

Positive Working Capital = Σ Current Assets — Σ Current Liabilities; where, Σ Current Assets > Σ Current Liabilities.

(ii) **Negative Working Capital :** If the value of total Current Liabilities is more than the value of total current assets, then the excess amount of current liabilities over the current assets is called **Negative working capital.** That is—

Negative Working Capital = Σ Current Liabilities − Σ Current Assets; where, Σ Current Liabilities > Σ Current Assets.

(iii) **Zero Working Capital :** If the difference between the total value of current assets and the total value of current liabilities is zero, then it is called **Zero Working Capital.**

Positive, negative and zero working capital are shown below with the help of the following example—

□ **Example :** The following are the Balance Sheets of X Ltd ; Y Ltd ; and Z Ltd.

Balance Sheet

Liabilities	*X Ltd.* ₹	*Y Ltd.* ₹	*Z Ltd.* ₹	*Assets*	*X Ltd.* ₹	*Y Ltd.* ₹	*Z Ltd.* ₹
Share capital	1,00,000	2,00,000	2,50,000	Land & Building	1,50,000	2,00,000	3,00,000
Debentures	1,00,000	1,20,000	1,50,000	Plant & Machinery	—	1,50,000	1,20,000
Reserve Fund	60,000	40,000	50,000	Furniture	60,000	40,000	30,000
Creditors	30,000	60,000	90,000	Stock	70,000	60,000	80,000
Bills Payable	20,000	50,000	60,000	Debtors	40,000	50,000	70,000
Bank Overdraft	—	70,000	—	Bills Receivable	20,000	45,000	50,000
Outstanding Expenses	5,000	—	10,000	Marketable Securities	—	50,000	—
Proposed Dividend	20,000	30,000	40,000	Cash at Bank	—	—	40,000
Provision for Taxation	15,000	30,000	50,000	Cash in hand	10,000	5,000	10,000
	3,50,000	6,00,000	7,00,000		3,50,000	6,00,000	7,00,000

Calculate Net Working Capital.

• **Solution ⇒ Statement showing Net Working Capital**

Particulars	*X Ltd.* *Amount* ₹	*Amount* ₹	*Y Ltd.* *Amount* ₹	*Amount* ₹	*Z Ltd.* *Amount* ₹	*Amount* ₹
Σ Current Assets :						
Stock	70,000	—	60,000	—	80,000	—
Debtors	40,000	—	50,000	—	70,000	—
Bills Receivable	20,000	—	45,000	—	50,000	—
Marketable Securities	—	—	50,000	—	—	—
Cash at Bank	—	—	—	—	40,000	—
Cash in hand	10,000	—	5,000	—	10,000	—
		1,40,000		**2,10,000**		**2,50,000**
Less : **Σ Current Liabilities :**						
Creditors	30,000	—	60,000	—	90,000	—
Bills Payable	20,000	—	50,000	—	60,000	—
Bank Overdraft	—	—	70,000	—	—	—
Outstanding Expenses	5,000	—	—	—	10,000	—
Proposed Dividend	20,000	—	30,000	—	40,000	—
Provision for Taxation	15,000	—	30,000	—	50,000	—
		90,000		**2,40,000**		**2,50,000**
		50,000		**(–) 30,000**		**Nil**
		[Positive]		**[Negative]**		**[Zero]**

2. **Nature-based Classification :** Working capital can be classified into two categories according to its nature, such as— a. Permanent Working Capital and b. Variable Working Capital. These are discussed below :

a. **Permanent Working Capital :** The minimum amount of working capital which has to be maintained throughout the year for ensuring the effective use of the fixed assets and the rotation process of the current assets, is called **Permanent or Fixed Working Capital.** The permanent working capital can be divided into two parts, namely—

(i) ***Regular Working Capital*** **:** The portion of the permanent working capital which is needed for ensuring the rotation process of the current assets through the conversion of cash into raw-materials, raw-materials into finished goods, finished goods into trade debtors and trade debtors into cash in a continuous way, is called **Regular Working Capital.**

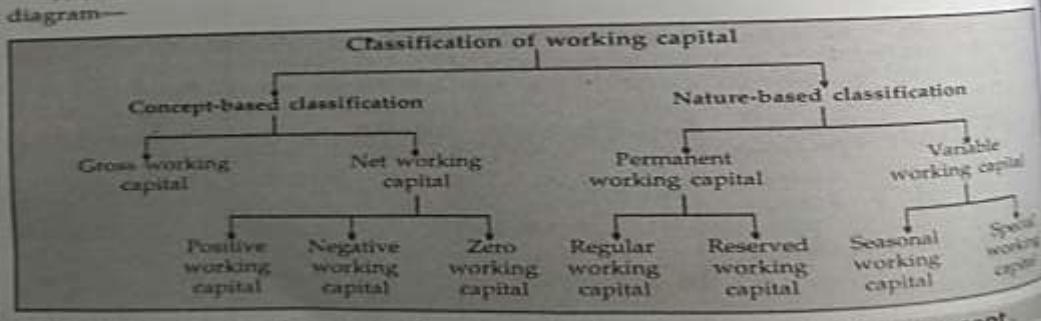
(ii) ***Reserved Working Capital*** **:** The portion of the working capital which is maintained for supporting the contingent and uncertain conditions like sudden price hike, strike, business depression etc. is called **Reserved Working Capital.**

a. **Variable Working Capital :** The portion of the working capital which is needed for meeting the seasonal demand and some special situational requirement, is called **Variable or Temporary Working Capital.** The variable working capital may be further classified into two parts. These are—

(i) ***Seasonal Working Capital*** **:** The portion of the variable working capital which is needed for meeting the seasonal demand is called **Seasonal Working Capital.**

(ii) ***Special Working Capital*** **:** The portion of the variable working capital which is needed for financing special operation, such as—extensive marketing campaigns, experiments with products, carrying of special job etc. is called **Special Working Capital.**

The classification of working capital is shown below with the help of the following diagram—



F Differences between Gross and Net Working Capital Concept

Gross working capital refers to the sum total of all the current assets. On the other hand, net working capital refers to the difference of total current assets and total current liabilities. The differences between these two concepts of working capital are shown below :

Gross Working Capital Concept	Net Working Capital Concept
(i) According to this concept, the sumtotal of all the current assets is the working capital.	(i) According to this concept, the difference between the current assets and current liabilities is the working capital.
(ii) It is a quantitative concept.	(ii) It is a qualitative concept.
(iii) According to this concept, the working capital is always positive.	(iii) According to this concept, the working capital may be either zero, or positive or negative.
(iv) What amount of current assets has been financed from the long-term source can not be known from this concept.	(iv) What amount of current assets has been financed from the long-term source can be known from this concept.
(v) Whether any part of current liabilities has been invested in fixed assets that can not be known from this concept.	(v) Whether any part of current liabilities has been invested in fixed assets that can be known from this concept.
(vi) The creditors can not know their margin of safety with the help of this concept.	(vi) The creditors can know their margin of safety with the help of this concept.

G Differences between Fixed and Variable Working Capital

Fixed Working Capital	Variable Working Capital
(i) Fixed working capital required to ensure the effective use of the fixed assets and to maintain the rotation process of the current assets property.	(i) Variable working capital is required to meet the seasonal demand and some special situational requirements.
(ii) Fixed working capital is classified as Regular Working Capital and Reserved Working Capital.	(ii) Variable working capital is classified as Seasonal Working Capital and Special Working Capital.
(iii) This working capital is invested for long-time.	(iii) This working capital is invested for short-time.
(iv) This working capital should be financed from long-term sources.	(iv) This working capital should be financed from short-term sources.
(v) It is required for whole year.	(v) If is required not for whole year.
(vi) The amount of this working capital remains fixed throughout the year.	(vi) The amount of this working capital does not remain fixed throughout the year.

H Significance or Importance of Working Capital

Importance of working capital in any type of business is unlimited. The day-to-day activities of the business is conducted with the help of this working capital. So, the working capital is called life-blood and controlling nerve centre of the business. As the human body becomes motionless without life-blood, similarly the business becomes motionless without the working capital. No business can be conducted successfully without sufficient amount of working capital. The importance or significance of the working capital is discussed on the next page :

(i) **Solvency :** The short-term solvency of the business depends on the amount of working capital. If there is sufficient amount of working capital in the business, then it is possible to repay the claims of creditors on demand. On the other hand, the shortage of working capital indicates incapability of repayment of short-term liabilities. So, every business should have sufficient amount of working capital in order to maintain the short-term solvency.

(ii) **Maintenance of Goodwill :** If it is possible to repay the claim of creditors in time, then the credibility of the concern increases and as a result of it, the goodwill of the business increases. If there is sufficient amount of working capital in the business, then only it is possible to repay the claim of the creditors in time. So, every business should have sufficient amount of working capital so that the goodwill of the firm remains intact.

(iii) **Possibility of getting loans :** Sufficient amount of working capital expresses solvency of the business and indicates satisfactory debt-settlement capacity. So, the concerns which have sufficient amount of working capital can easily get loan from the market at favourable terms.

(iv) **Regular supply of raw materials :** It is possible to repay the claim of suppliers of the raw materials in time if there remains sufficient amount of working capital in the business. As a result of it, the raw materials are available from the suppliers on demand. Beside this, for smooth supply of raw material throughout the year in case of seasonal industry, sufficient amount of working capital is needed for storing of raw material at the season.

(v) **Opportunity of cash discount :** If there is sufficient working capital, then it is possible to repay the claim of suppliers in time. As a result of it, cash discount is available from them. Thus, the cost of purchases as well as the cost of production come down and the net income of the business increases.

(vi) **Regular payment of day-to-day expenditure :** It is possible for the concerns, which have sufficient amount of working capital, to pay wages to the workers and to meet day-to-day overheads regularly. Thus, the reliability of the workers increases and also the amount of cost reduces as wastages are reduced. As a result of it, the amount of profit also increases with increasing in quality and quantity of the product.

(vii) **Exploitation of favourable market condition :** The firms which have sufficient amount of working capital can easily take the opportunities of the favourable market conditions. If there is sufficient amount of working capital in hand, then the opportunities of favourable market conditions can be taken by increasing the quantity of production when demand increases and storing huge quantity of raw materials when price reduces and holding the inventories for selling goods at high prices.

(viii) **Solving the crisis :** If there is sufficient amount of working capital in the business, then it can be faced different crisis like, depression is found suddenly in the market, or it is necessary to purchase raw materials urgently, or any emergency situation arises temporarily. Because at that time, pressures are mounting on the working capital.

(ix) **Quick and regular return on Investment :** The investors expect a quick and regular return on their investment. If there is sufficient amount of working capital in the business, then the firm can pay interest and dividend to the investors in proper time. As a result of it, confidence is gaining in the minds of the investors towards the business and if additional capital is required in future for the expansion of the business, then the company finds no difficulty to get the same.

(x) **High Morale :** If there is sufficient amount of working capital in the business, then wages

and salaries can be paid in time, claims of the creditors can be settled in time and interest and dividend can be paid to the investors regularly. As a result of it, high morale is created towards the business and quick expansion takes place in the business.

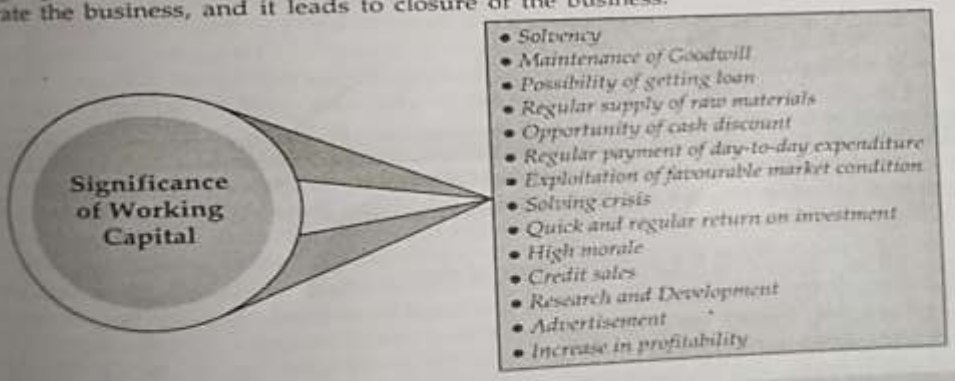
(xi) **Credit sales :** It is possible to sale goods on credit if there is sufficient working capital in the business. As a result of it, the amount of sales as well as the amount of profits increases.

(xii) **Research and Development :** If there is adequate amount of working capital, a part of it can be used for the purpose of research and developments. As a result of it, the quality of the product improves and it is possible to produce new products keeping in mind the changing scenario of the business environment.

(xiii) **Advertisement :** The present age is an age of advertisement. The demand for the existing product can be kept intact on the one hand and on the other hand, new demand can be created by creating new customers through the advertisement. When there is sufficient amount of working capital in the business, it is possible to incur a part of it for the advertisement.

(xiv) **Increase in profitability :** Wastages are reduced to minimum, production and sales are increased and opportunity of cash discount can be taken as a result of quick turnover and efficient management of working capital. As a result of this, the profit-earning capacity of the business increases.

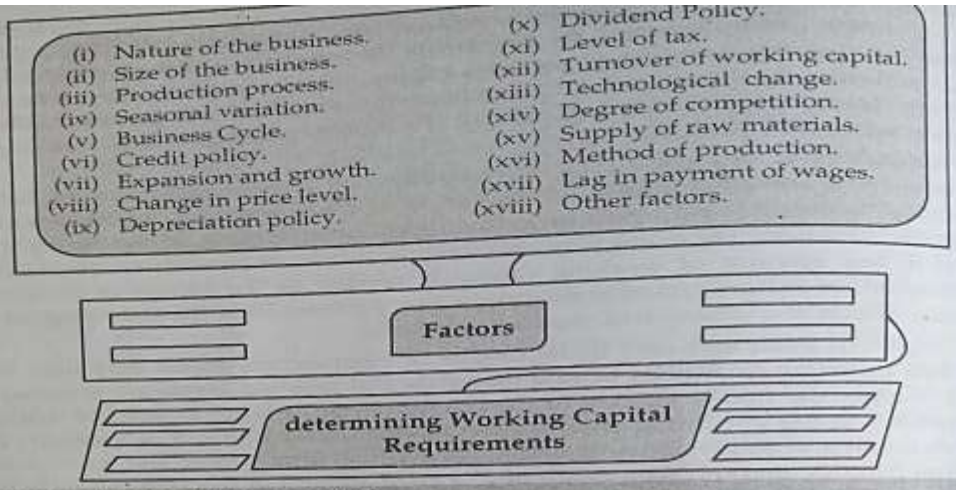
On the basis of above discussions, it can be said that the importance of working capital in each business is unlimited. The progress of the business gradually goes slow if the amount of working capital is insufficient, and if there is no working capital at all, then it is not possible to operate the business, and it leads to closure of the business.



Evail Effect of Redundant Working Capital

Every business should have adequate amount of working capital to run its operation successfully. But on account of that, a business should never have redundant amount of working capital, because if the amount of working capital is very large, the business has to face different problems. For example—

(i) **Decrease in return :** Excessive working capital means idle funds which earn no profit for the business. As a result of this, the rate of return on investment decreases.



M Sources of Working Capital

The sources of working capital can be divided into two categories, namely—long-term sources and short-term sources. These are discussed below—

1. **Long-term Sources :** The sources from which working capital is procured for a long period are called long-term sources of working capital. As fixed or permanent working capital is required for a long period, it is procured from long-term sources. Thus, the long-term sources of working capital refer to the sources of fixed or permanent working capital. These sources can be divided into two parts. They are—(a) *External Sources*, and (b) *Internal Sources*. These are discussed below :

   (a) ***External Sources*** **:** The external sources of fixed or permanent working capital are—

   (i) Issue of Equity Share : As the equity share capital is not paid back other than the time of liquidation of the company, the capital which is procured by issuing equity share remains invested for a long period in the business. Again fixed working capital is required for a long period. So, the fixed working capital can be procured by issuing equity share capital.

   (ii) Issue of Preference Share : Like equity share, fixed working capital can be procured also by issuing preference share. But its permanency is less than the equity share because, the preference share capital has to be redeemed within 20 years from the date of issue according to the amended Companies Act u/s 80 (5A) of 1996.

   (iii) Issue of Debenture : Debenture is a source of long-term capital. So, fixed working capital can be procured by issuing debentures. If finance is raised for working capital by issuing debenture, then the benefit of trading on equity can be received, the controlling power of the directors remains intact and the overall cost of capital is reduced.

   (iv) Taking long-term loan from Financial Institutions : The fixed working capital can be procured by taking long-term loan from financial institutions. Industrial

Finance Corporation of India (**IFCI**), Industrial Development Bank of India (**IDBI**), Industrial Credit and Investment Corporation of India (**ICICI**), State Finance Corporation (**SFC**), etc. are the financial institution which provide long-term loan to the business firms. As this type of loan is repaid in instalments, if working capital is procured from this source, the capital structure of the firm is flexible.

(b) ***Internal Sources*** : The internal sources of fixed working capital are Retained earnings. The part of the distributable profit which is set aside without distributing among the shareholders in order to strengthen the financial condition of the business, is called **Retained Earning**. This retained earning is a source of long-term capital. So, fixed working capital can be raised by creating retained earning. If working capital is raised from this source, the firm does not have to bear any fixed financial cost on account of interest and dividend.

2. ***Short-term Sources*** : the sources from which working capital is procured for the period of less than one year are called Short-term sources of working capital. As the temporary or variable working capital is required for a short period, it is procured from short-term sources. Thus, the short-term sources of working capital refer to the sources of the temporary or variable working capital. Again, these sources can be classified into two categories. They are—(a) *External Sources* and (b) *Internal Sources*. These are discussed below :

(a) ***External Sources*** : The external sources of variable or temporary working capital are—

(i) **Commercial Bank** : The variable or temporary working capital can be procured from Commercial Banks through taking (a) loan and advance by mortgaging Gold, Silver, Land, Investment paper etc with them, (b) Cash credit against the Security of Stock-in-trade and Trade Debtors and (c) Overdraft against the Deposit of Stock-in-trade or a Precious Thing. It is a very suitable source of raising finance for working capital, because, the working capital can be procured from this source as and when required.

(ii) **Trade Credit** : The Credit which is received from the suppliers of goods in the normal course of business, is called **Trade Credit**. Such credit has to be met within a specified short period. So, it is a Short-term source of raising finance for working capital.

(iii) **Outstanding Expenses** : Outstanding expenses represent a liability that a firm has to meet within a very short period for the services which have already been received from a person or a concern. For example, Outstanding Salaries, Outstanding Electric Bill, Outstanding Wages etc. are outstanding expenses. The finance which is raised through outstanding expenses has to be met with a very short period. So, it is a short-term source of working capital.

(iv) **Deferred Income** : The funds which are collected by a firm from its customers on condition of supplying goods or rendering service in future, is called **Deferred Income**. As a result of such deferred income, the liquidity of the firm increases in the form of cash. The firm does not have to bear any financing cost for raising finance in this way. So, it is an important short-term source of raising finance for working capital.

(v) **Commercial Paper** : Commercial paper is a short-term unsecured Promissory Note which can be issued by the non-banking firms for procuring working capital for a short period. So, it is clear that the commercial paper is a source of short-term working capital.

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15. **Inter-corporate Deposit :** In the case of inter-corporate deposit, the loan has to be repaid very quickly. Moreover, in the case of call deposit, required arrangement has to be made for repayment of loan on the basis of only one day's notice. So, if working capital is procured from this source, the manager always have to remain anxious for repayment of loan.
16. **Provision for taxation :** At present, as there is the system of paying advance tax, outflow of cash takes place due to payment of advance tax before making provision for taxation. So, a marginal amount of working capital may be procured from this source for a very short period.
17. **Provision for Depreciation :** Depreciation is an internal transaction. So, this transaction can not generate any new fund. Besides this, if depreciation was a source of fund, when necessary, fund would be collected by charging depreciation on assets. But in reality, it never be possible. So, depreciation is not a source of working capital.
18. **Proposed Dividend :** In most of the cases, it is found that after declaration of dividend, working capital has to be arranged for paying that dividend. So, there is a doubt in this matter that how much amount of requirement of working capital can be met by the proposed dividend.

O Working Capital Cycle

Raw materials are pruchased out of cash which is invested at the initial stage of starting the business, finised goods are produced by converting the raw materials with the help of labour and overheads, trade debtors are generated through the sale of finished goods on credit and again cash is generated when debts are realised from the trade debtors. Again, raw materials are purchased with the help of this cash. In this way, the working capital of a firm is rotated repeatedly in the form of a circle. This circle is called working capital cycle. Thus, it can be said that ***the repeated process of circulating working capital from cash to raw materials, raw materials to finished goods, finished goods to trade debtors and again from trade debtors to cash is called working capital cycle.*** This cycle is presented below diagrammatically—

P Features of Working Capital Cycle

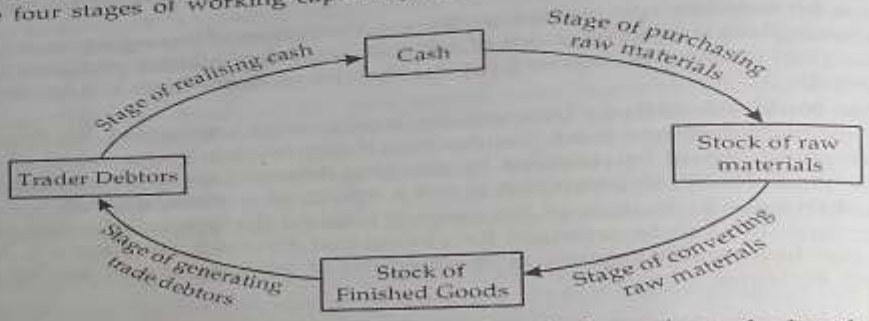
The features which are found in working capital cycle are—

(i) **Stage :** Working capital cycle has four stages *i.e.*, a cycle of working capital is completed through four stages. These stages are—

(a) Stage of purchasing raw materials with the help of cash;

(b) Stage of converting the raw materials into finished goods;
(c) Stage of generating trade debtors through sale of finished goods; and
(d) Stage of realising cash from the trade debtors.

These four stages of working capital cycle are shown below :

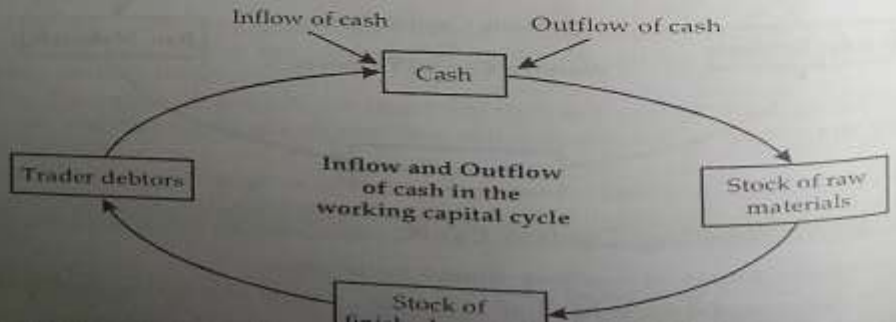


(ii) **Size of the cycle :** The size of working capital cycle depends on the length of the above four stages. The more the length of the stages, the more bigger will be the size of the cycle and vice-versa.

(iii) **Indicator of Block Period :** The cycle indicates the block period of working capital. For example, suppose raw materials remain in store for 20 days after purchasing them, 10 days are required for converting the raw materials into finished product, 15 days are required for generating trade debtors through sale of finished product and the trade debtors Settle debts after 30 days. Thus, the total block period of working capital will be (20 + 10 + 15 + 30) days or, 75 days.

(iv) **Continuous process :** As production and sales run continuously, the cycle has no interval. That is, the rotation of working capital is a cntinuous process.

(v) **Process of conversion from cash to cash :** The working capital cycle starts with outflow of cash and ends with inflow of cash. That is, outflow of cash takes place from one end of this cycle and inflow of cash takes place from the other side.



Factors determining the Working Capital Cycle or Working Capital Turnover Period

The size of working capital cycle or the period of working capital turnover depends on the following factors—

(i) **Nature of Raw materials :** The firms which use weight decreasing or perishable raw materials in their production process have to use the raw materials immediately with the purchase of them. As in these cases, raw materials are converted into finished products quickly, the size of working capital cycle is small or working capital turnover period is less. Thus, the working capital cycle or working capital turnover period depends on the nature of raw materials used in the production process.

(ii) **Nature of Production :** The size of working capital cycle or the period of working capital turnover also depends on the nature of production process. For instance, raw materials can be converted into finished product more quickly by automatic machine than mannual machine. So, where goods are produced by automatic machine, the size of working capital cycle is small in that case. As a result of this, the period of working capital turnover is less.

(iii) **Nature of Product :** As the daily useful goods are sold quickly, they remain unsold in store for short period. So, in the case of daily useful goods, the size of working capital cycle is small or the period of working capital turnover is less. On the other hand, as more time is required for selling the precious and durable goods, they remain in store comparatively for longer period. So, in the case of precious and durable goods, the size of working capital cycle is comparatively larger. Therefore, the period of working capital turnover is greater in this case. Thus, the size of working capital cycle as well as the period of working capital turnover depend on the nature of the product.

(iv) **Demand for the product :** The size of working capital cycle as well as the working capital turnover period depend also on the demand for product. Because, the more the demand of a product, the more rapidly is sold the product. So, the product having high demand remains in store for short period. For this, in the case of this type of product, the size of working capital cycle is small or the working capital turnover period is less. On the other hand, more time is required for selling the product having low demand. So, such product remains in store for long period. For this, in the case of this type of product, the size of working capital cycle is small or the working capital turnover period is less.

(v) **Credit Policy :** Also the credit policy of the firm influences the size of working capital cycle or the working capital turnover period. The firms which adopt liberal credit policy, the product of those firms are sold rapidly. So, in this case, the working capital cycle is small or the period of working capital turnover is less. On the contrary, the firms which adopt rigid credit policy, as the amount of credit sales in the case of them is lesser, the finished goods remain in store for longer period. So, in this case, the size of working capital cycle is longer or the working capital turnover period is greater.

(vi) **Collection Policy :** The firms which can realise debts from the customers quickly, the trade debtors of them are converted into cash quickly. So, in such cases, the working capital cycle is small or the period of working capital turnover is less. On the other hand, if there is delay in collection of debts, more time is required for converting the debts into cash. So, in that case, the working capital cycle is smaller or the period of working capital turnover is less. Thus, the working capital cycle as well as the period of working capital

turnover depend on the collection policy of the firm.

Importance of Working Capital Cycle

The concept of working capital cycle is very important to the financial managers in the [illegible] management, because they can take various important decisions relating to the working [illegible] management on the basis of this cycle. For instance—

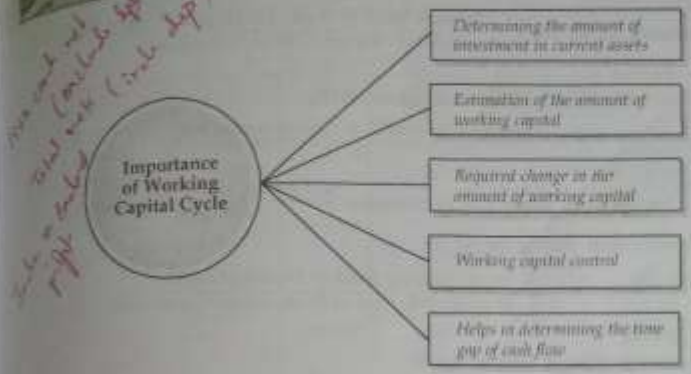
(i) **Determining the amount of Investment in Current Assets :** How much amo[illegible] working capital remains blocked in a component of current assets that can be dete[illegible] by studying the working capital cycle. For example, suppose, raw materials storing [illegible] is 2 weeks, finished goods storing period is 3 weeks and credit allowed to de[illegible] 4 weeks. Thus, raw materials remain blocked for 2, 3 and 4 weeks in store, finished [illegible] and debtors respectively. Therefore, total block period of raw materials is (2+3+4) [illegible] or 9 weeks. Now, let ₹ 5,000 is required in each week for raw materials. Thus, w[illegible] capital of ₹ (5,000 × 9) or, ₹ 45,000 will be required for raw materials.

(ii) **Estimation of the amount of working capital :** As how much amount of working [illegible] is required for a component of current assets that can be known from the working [illegible] cycle, total amount of working capital can be determined with the help of the [illegible] because, the sumtotal of all the components of the current assets is the total w[illegible] capital.

(iii) **Required changes in the amount of working capital :** The bigger the perimeter [illegible] working capital cycle, the more amount of working capital is required and vice [illegible] So, required change in the amount of working capital can be performed by chang[illegible] perimeter of the working capital cycle.

(iv) **Working capital control :** As the amount of working capital depends on the pe[illegible] of the wroking capital cycle, porper control can be imposed on the working ca[illegible] applying the concept of this cycle. As a result of this, it is possible to manage the w[illegible] capital efficiently.

(v) **Helps in determining the time gap of cash flow :** The working capital starts with [illegible] of cash and completes with inflow of cash. So, total time gap between outflow and [illegible] of cash can be known through this cycle.



1 Operating Cycle Period

Raw materials are purchased out of cash which is invested at the initial stage of the business. Finished goods are produced by converting the raw materials with the help of labour and overheads. Debtors are generated through sale of finished goods on credit and again cash is generated when debts are realised from the trade debtors. This process is rotated repeatedly. The total time which is required to perform one rotation process in this way, is called operating cycle period. Thus, it can be said that ***the total time which is required by the working capital to rotate the working capital cycle oneov, is called operating cycle period.***

2 Technique of determining the Operating Cycle Period

The summtotal of raw materials storing period, finished goods storing period and the period of credit allowed to customers is **Gross operating Cycle Period**. Again, in the ordinary course of business, raw materials and services can be procured on credit from the creditors. If the period of credit allowed by creditors is deducted from the gross operating cycle period, net operating cycle period is obtained. So, if raw materials storing period, processing period, finished goods storing period, period of credit allowed to debtors and period of credit allowed by credit of a firm can be determined, the operating cycle period of that firm will be known. These periods can be determined in the following ways—

1. **Raw Material Storing Period (R)** $= \dfrac{\text{Average Stock of Raw Material}}{\text{Average daily use of Raw Material}}$

where,

(i) *Average Stock of Raw Material*

$$= \frac{\text{Opening Stock of Raw Material} + \text{Closing Stock of Raw Material}}{2}$$

(ii) *Average daily use of Raw material* $= \dfrac{\text{Raw material consumed}}{365 \text{ days}}$

2. Processing period (P) = $\frac{\text{Average Stock of Work - in - Progress}}{\text{Average daily Factory Cost of Production}}$

where,—

(i) Average Stock of Work-in-Progress (WIP)

$= \frac{\text{Opening Stock of WIP} + \text{Closing Stock of WIP}}{2}$

(ii) Average daily Factory Cost of Production = $\frac{\text{Factory Cost of Production}}{\text{365 days}}$

3. Finished Goods Storing Period (F)

$= \frac{\text{Average Stock of Finished Goods}}{\text{Average daily Cost of Production of Goods sold}}$

where,—

(i) Average Stock of Finished Goods

$= \frac{\text{Opening Stock of Finished Goods} + \text{Closing Stock of Finished Goods}}{2}$

(ii) Average daily Cost of Production of goods sold = $\frac{\text{Cost of Production of Goods sold}}{\text{365 days}}$

4. Period of Credit allowed to Debtors (D) = $\frac{\text{Average Trade Debtors}}{\text{Average daily Credit Sales}}$

where,—

(i) Opening Trade Debtors = Opening Sundry Debtors + Opening Bills Receivable

(ii) Closing Trade Debtors = Closing Sundry Debtors + Closing Bills Receivable

(iii) Average Trade Debtors = $\frac{\text{Opening Trade Debtors} + \text{Closing Trade Debtors}}{2}$

(iv) Average daily Credit sales = $\frac{\text{Annual Credit sales}}{\text{365 days}}$

5. Period of Credit allowed by Creditors (C) = $\frac{\text{Average Trade Creditors}}{\text{Average daily Credit purchases}}$

where,—

(i) Opening Trade Creditors = Opening Sundry Creditors + Opening Bills Payable

(ii) Closing Trade Creditors = Closing Sundry Creditors + Closing Bills Payable

(iii) Average Trade Creditors = $\frac{\text{Opening Trade Creditors} + \text{Closing Trade Creditors}}{2}$

(iv) Average daily Credit Purchases = $\frac{\text{Annual Credit Purchases}}{\text{365 days}}$

∴ Gross Operating Cycle Period = R + P + F + D and

Net Operating Cycle Period = (R + P + F + D) – C].

Example : The followings are the Financial Statements of Palmolive Ltd :

Profit & Loss Account
for the year-ended 31. 3. 08

Particulars	₹	Particulars	₹
To Opening Stock :		By Sales :	
Raw materials ₹ 40,000		in cash ₹ 1,80,000	
Work-in-Progress ₹ 30,000		on credit ₹ 7,20,000	9,00,000
Finished goods ₹ 70,000	1,40,000		
To Purchases :		By Closing Stock :	
in cash ₹ 56,000		Raw materials ₹ 60,000	
on credit ₹ 3,24,000	3,80,000	Work-in-Progress ₹ 40,000	
		Finished goods ₹ 80,000	1,80,000
To Direct wages	1,80,000		
To Manufacturing expenses	1,00,000		
To Office & Administration expenses	55,000		
To Selling & distribution expenses	75,000		
To Net profit	1,50,000		
	10,80,000		10,80,000

Balance Sheet as at 31. 3. 08

Previous year ₹	Liabilities	Current year ₹	Previous year ₹	Assets	Current year ₹
6,00,000	Share Capital	6,00,000	8,00,000	Fixed Assets	7,50,000
80,000	Reserve & Surplus	1,02,000	1,40,000	Stock	1,80,000
2,50,000	Long-term Loan	2,50,000	40,000	Sundry Debtors	1,00,000
40,000	Sundry Creditors	50,000	10,000	Bills Receivable	30,000
10,000	Bills Payable	8,000	10,000	Cash & Bank	40,000
40,000	Outstanding expenses	90,000			
10,00,000		11,00,000	10,00,000		11,00,000

You are required to calculate operating cycle period of the company assuming 360 days in a year.

Solution ⇒

Statement showing Computation of Operating Cycle Period

Particulars	Days
Raw materials storing period :	
$\frac{\text{Average Stock of Raw materials}}{\text{Average daily use of Raw materials}} = \frac{50,000}{1,000}$ [note (2)]	50

Processing period :

$$\frac{\text{Average Stock of Work - in - Progress}}{\text{Average daily Factory Cost of production}} = \frac{35,000}{1,750} \text{ [note-(3)]}$$

Finished goods Storing period :

$$\frac{\text{Average Stock of Finished goods}}{\text{Average daily Cost of production of goods sold}} = \frac{75,000}{1,875} \text{ [note-(4)]}$$

Period of credit allowed to Debtors :

$$\frac{\text{Average Trade Debtors}}{\text{Average daily Credit Sales}} = \frac{90,000}{2,000} \text{ [note-(5) \& note-(7)]}$$

Gross Operating Cycle Period

Less : Period of credit allowed by Creditors

$$\frac{\text{Average Tade Creditors}}{\text{Average daily Credit purchases}} = \frac{54,000}{900} \text{ [note-(6) \& note-(8)]}$$

Net Operating Cycle Period

Working notes ⇒ 1. **Statement showing Computation of Cost of Production of goods sold**

Particulars	Amt. ₹
Opening Stock of Raw materials	
Add : Purchases	
Less : Closing Stock of Raw materials	
Raw materials consumed	
Add : Direct Wages	
Add : Manufacturing expenses	
Add : Opening Stock of Work-in-Progress	
Less : Closing Stock of Work-in-Progress	
Factory Cost of Production	
Add : Office & Administration expenses	
Cost of Production	
Add : Opening Stock of Finished goods	
Less : Closing Stock of Finished goods	
Cost of Production of goods sold	

2. (i) Average daily use of Raw materials = $\frac{\text{Raw materials consumed}}{360} = \frac{3,60,000}{360} = 1,000.$

(ii) Average Stock of Raw materials

$$= \frac{\text{Opening Stock of Raw materials + Closing Stock of Raw materials}}{2}$$

$$= \frac{40,000 + 60,000}{2} = ₹\ 50,000.$$

3. (i) Average daily Factory Cost of Production

$$= \frac{\text{Factory Cost of Production}}{360} = \frac{6,30,000}{360} = ₹\ 1,750.$$

(ii) Average Stock of Work-in-Progress (WIP)

$$= \frac{\text{Opening Stock of WIP + Closing Stock of WIP}}{2}$$

$$= \frac{30,000 + 40,000}{2} = ₹\ 35,000.$$

4. (i) Average daily Cost of Production of goods sold

$$= \frac{\text{Cost of Production of goods sold}}{360} = \frac{6,75,000}{360} = 1,875.$$

(ii) Average Stock of Finished goods

$$= \frac{\text{Opening Stock of Finished goods + Closing Stock of Finished goods}}{2}$$

$$= \frac{70,000 + 80,000}{2} = ₹\ 75,000$$

5. Average Trade debtors :

	Opening ₹	*Closing* ₹
Sundry Debtors	40,000	1,00,000
Bills Receivable	10,000	30,000
Trade Debtors	50,000	1,30,000

$$\therefore \text{Average Trade Debtors} = \frac{\text{Opening Trade Debtors + Closing Trade Debtors}}{2}$$

$$= \frac{50,000 + 1,30,000}{2} = ₹\ 90,000$$

6. Average Trade Creditors :

	Opening ₹	*Closing* ₹
Sundry Debtors	40,000	50,000
Bills Payable	10,000	8,000
Trade Creditors	50,000	58,000

6. Average Trade Creditors $= \frac{\text{Opening Trade Creditors} + \text{Closing Trade Creditors}}{2}$

$= \frac{50,000 + 58,000}{2} = ₹\ 54,000$

7. Average daily Credit Sales $= \frac{\text{Annual Credit Sales}}{360} = \frac{7,20,000}{360} = ₹\ 2,000.$

8. Average daily Credit Purchases $= \frac{\text{Annual Credit Purchases}}{360} = \frac{3,24,000}{360} = ₹\ 900.$

U Technique of Reducing Operating Cycle Period

The longer the operating cycle period, the more the amount of working capital is required and vice-versa. That is, the amount of working capital depends on the operating cycle period. Again, the goal of sound working capital management is to reduce the amount of working capital as far as possible without hampering production, purchases and sales. As the requirement of working capital decreases with the decrease in operating cycle period, the financial manager try to reduce the operating cycle period as far as possible. The operating cycle period can be reduced in the following ways—

(i) **Use of Automatic machine :** Raw materials can be converted into finished product by automatic machine quicker than manual machine. So, if automatic machine is used in the production process, the operating cycle period decreases. Thus, the operating cycle period can be reduced by replacing the manual machine by the automatic machine.

(ii) **Increase in Demand :** The more the demand of a product, the more rapidly the product is sold. So, as the products having more demand remains unsold in store for short period, the operating cycle period is less for them. Thus, if it is possible to increase the demand, the operating cycle period will be decreased.

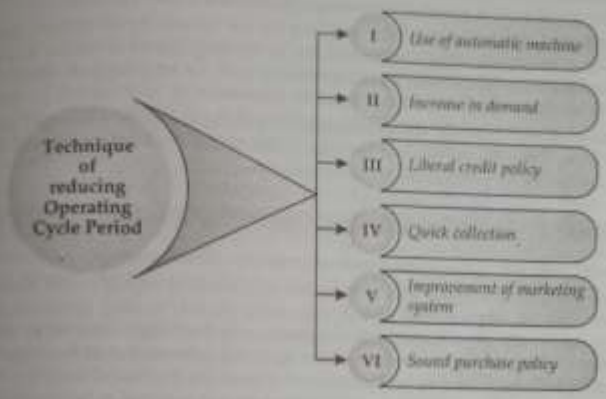
(iii) **Liberal credit policy :** The firms which adopt liberal credit policy in the case of credit sales, the products of those firms are sold quickly. So, the operating cycle period is less in such cases. Thus, the operating cycle period can be decreased by adopting liberal credit policy.

(iv) **Quick collection :** The firms which can realise debts from the trade debtors quickly, the trade debtors are converted quickly into cash in the case of them. So, the operating cycle period is less in such cases. Thus, the operating cycle period can be reduced by expediting the course of realisation of debts.

(v) **Improvement of marketing system :** The amount of sales of a firm depends on the marketing management of that firm. If the marketing management is defective, more time is required for selling the goods. As the goods remain unsold in store for long time in such a case, the operating cycle period gets increased. On the other hand, if the marketing management is efficient, goods are sold quickly. So, the operating cycle period is less. Thus, the operating cycle period can be reduced by improving the marketing management.

(vi) **Sound purchase policy :** If goods are produced by high quality raw materials, the qualitative excellence of the goods increases. Again, excellent quality of goods are sold very rapidly at fair price. As a result of this, the operating cycle period decreases due to decrease in finished goods storing period. So, if the purchase manager can purchase

high quality raw materials in time at reasonable price, the operating cycle period will be decreased.



Forecasting of Working Capital

Working capital is called life-blood and controlling nerve of the business. Whatever may be the volume and nature of the business, every business requires working capital, because no business can be operated without the working capital. But if the amount of working capital is more than its requirement, capital remains blocked unnecessarily in the business. Besides this, no return is obtained on surplus working capital and therefore, the rate of return on capital employed decreases. On the other hand, if the amount of working capital is less than its requirement, then the normal activities of the business are hampered. So, every business needs sufficient amount of working capital. Since the amount of working capital should not be more or less. The amount of required working capital should be determined correctly before starting a business or accepting a project. It is called Forecasting of Working Capital. Thus, it can be said that ***the forecasting of working capital is the determination of exact amount of working capital which is needed for starting a business or for accepting a proposed project.***

Necessity of Forecasting of Working Capital

The forecasting of working capital is needed due to following reasons :

(i) **Determination of appropriate amount :** If the amount of working capital is more than its actual requirement, then capital is blocked unnecessarily in the business and the rate of return on capital employed is less. On the other hand, if the amount of working capital is less than its actual requirement, the normal activities of the business are hindered. So, every business should have exact amount of working capital. It is possible to determine the exact amount of working capital with the help of the forecasting of working capital.

(ii) **Arrangement of Financing :** The required working capital can be predicted previously with the help of the forecasting of working capital. As a result of it, the sources of working capital can be incorporated in the financial plan.

(iii) **Efficient use of Current Assets :** At the time of forecasting the working capital, it is to be decided what amount of working capital is to be invested in the form of current assets. As a result of it, it is possible to manage the current assets properly.

(iv) **Maintainance of Goodwill :** With the help of the forecasting of working capital, it is possible to know beforehand what amount of working capital is needed in future. So, it is possible to make necessary arrangement of cash for settlement of debts in time. As a result of it, the goodwill of the business increases.

(v) **Maintaining continuity in the production :** As working capital is arranged on the basis of the forecasting, the operational activities of the business are not interrupted. As a result of it, continuity of production remains uninterrupted.

requirement forecast statement. They are—(i) Matrix method, (ii) Current Assets and current liabilities method and (iii) Element of cost method. So, the last problem of working capital forecasting is how the forecast statement will be prepared. If it is necessary to represent the accounts relating to forecasting in detailed, the matrix method has to be followed; if it is necessary to forecast on the basis of current assets and current liabilities, the current assets and current liabilities method has to be followed; and if it is necessary to forecast in brief, the element of cost method has to be followed. Therefore, the forecast statement should be prepared on the basis of the requirement of the users of information relating to forecasting.

Factors to be Considered for Forecasting Working Capital

The factors which are required to be considered for forecasting working capital can be divided into four steps. These steps are discussed below :

1st Step ⇒ Data Collection : At first, a few data have to be collected for forecasting the working capital. These are :

(i) *Determination of amount of likely production throughout the year.*

(ii) *Determination of probable cost of raw materials, labour and overhead for each unit of production.*

(iii) *Raw materials storing period.*

(iv) *Time lag for production process.*

(v) *Time lag for storing finished goods in between production and sales.*

(vi) *Lag in payment of wages and overheads.*

(vii) *Credit period available from the suppliers of raw materials.*

(viii) *Average debts collection period.*

2nd Step ⇒ Determination of Average Cost : According to the necessity, the quantity of average weekly or monthly production has to be determined on the basis of likely production throughout the year. By multiplying this quantity of production with the per unit cost of raw

where, Average trade debtors

$$= \frac{\text{Opening trade debtors} + \text{Closing trade debtors}}{2},$$

$$\text{Average daily credit sales} = \frac{\text{Annual credit sales}}{365 \text{ or } 366 \text{ days}}, \text{ and}$$

trade debtors = Sundry Debtors + Bills Receivable

(v) **Credit period allowed by creditors** $= \dfrac{\text{Average trade creditors}}{\text{Average daily credit purchases}}$

where, Average trade creditors

$$= \frac{\text{Opening trade creditors} + \text{Closing trade creditors}}{2},$$

$$\text{Average daily credit purchases} = \frac{\text{Annual credit purchases}}{365 \text{ or } 366 \text{ days}},$$

and trade creditors = Sundry Creditors + Bills Payable.

FA Guidelines for Forecasting Working Capital of Manufacturing Concern

We know that the cash which is invested in the business is reconverted into cash through various stages. The requirement of working capital depends on locking period of different factors of production in various stages. Generally, the working capital remains blocked on account of raw materials, labour, overhead and profit. So, at first, how much time the working capital remains blocked in a factor is to be determined for ascertaining the total amount of working capital. The technique of determining the net block period of various factors is discussed below :

1. **Raw materials :** Raw materials can remain blocked in four stages, for instance—(i) in store, (ii) in work-in-progress, (iii) in finished goods, and (iv) in credit to debtors. If the period for which raw materials are obtained on credit is deducted from the whatever period the raw materials remain blocked in these four stages, then how much time the working capital remains blocked in raw materials is obtained. It is called Net Block Period of raw materials.
2. **Labour cost :** Wages of workers can remain blocked in three stages, for instance — (i) in work-in-progress, (ii) in finished goods, and (iii) in debtors. If the lag in time for payment of wages is deducted from whatever period the wages of workers remain blocked in these three stages, then how much time the working capital remains blocked on account of wages is obtained. It is called Net Block Period for wages.
3. **Overheads :** Overheads can remain blocked in three stages, for instance —(i) in work-in-progress, (ii) in finished goods, and (iii) in debtors. If the lag in payment of overhead is deducted from the whatever period the overheads remain blocked in these three stages, then how much time the working capital on account of overhead remains blocked is obtained.
4. **Profit :** Profit remains blocked upto the period for which credit is allowed to debtors.

If a statement is prepared seperately for determining the net block period of each factor, then the required working capital can be forecasted easily. A pro-forma of such a statement is given on the next page :

Statement showing for Computation of Net Block Period of each element

Particulars	Materials (time)	Labour (time)	Overhead (time)	Profit (time)
In Store	X	—	—	—
In Work-in-progress	X	$\frac{X}{2}$	$\frac{X}{2}$	—
In Finished Goods	2X	2X	2X	—
Credit to Debtors	3X	3X	3X	3X
	7X	$5\frac{1}{2}$X	$5\frac{1}{2}$X	3X
Less : Credit from Creditors	X	—	—	—
Lag in payment of wages	—	$\frac{1}{2}$X	—	—
Lag in payment of overhead	—	—	$\frac{1}{2}$X	—
Net Block Period	6X	5X	5X	3X

It is assumed that the production is carried on evenly throughout the year and wages and overhead accrue in the same way. So, the blocking period of labour and overheads is assumed to be half of the period for which material cost remains blocked in processing period.

Now if the net block period of a factor is multiplied by the required amount of working capital for each unit of time of that factor, then the total required amount of working capital for that factor will be obtained. Suppose, raw materials of ₹ 2a, wages of ₹ a, overhead of ₹ a and profit of ₹ a remains blocked for each unit of time. How much amount of working capital will be needed with respect to these assumption can be determined in any one of the following three alternative ways.

First Method ⇒ *Matrix Method* :

Working Capital Requirement Forecast Statement

Particulars	Period (Time)	Total (₹)	Raw materials (₹)	Work-in-progress (₹)	Finished goods (₹)	Debtors (₹)	Creditors (₹)
1. **Raw materials :**							
In store	x		2ax				
In work-in-progress	x			2ax			
In finished goods	2x				4ax		
Credit to Debtors	3x					6ax	
	7x						
Less : Credit from Creditors	x						2a
Net Block Period	**6x**	12ax					
2. **Labour :**							
In work-in-progress	$\frac{x}{2}$			$\frac{1}{2}$ax			

In finished goods	2x				2ax		
Credit to Debtors	3x					3ax	
	$5\frac{1}{2}$x						
Less : Lag in payment of wages	$\frac{1}{2}$x						$\frac{1}{2}$ax
Net Block Period	5x	5ax					
3. **Overhead** :							
In work-in-progress	$\frac{x}{2}$			$\frac{1}{2}$ax			
In finished goods	2x				2ax		
Credit to Debtors	3x					3ax	
	$5\frac{1}{2}$x						
Less : Lag in payment of overhead	$\frac{1}{2}$x						$\frac{1}{2}$ax
Net Block Period	5x	5ax					
4. **Profit** :							
Credit to Debtors	3x					3ax	
Net Block Period	3x	3ax					
Working Capital		25ax	2ax	3ax	8ax	15ax	3ax
Add : Expected cash in hand		...					
Net Working Capital		25ax					

Second Method ⇒ *Current Assets and Current Liabilities Method*

Working Capital Requirement Forecast Statement

Particulars	*Amount* (₹)	*Amount* (₹)	*Amount* (₹)
CURRENT ASSETS :			
1. **Stock-in-trade** :			
(i) Raw materials *(Average cost of raw materials × storing period)*		2ax	
(ii) Work-in-progress :			
— Raw materials *(Average cost of raw materials × processing period)*	2ax		
— Labour *(Cost of wages × processing period)*	$\frac{1}{2}$ax		
— Overhead *(Cost of overhead × processing period)*	$\frac{1}{2}$ax		
		3ax	

Particulars	₹
Materials : (Net block period for raw materials × cost of raw materials)	12ax
Labour : (Net block period for labour × cost of labour)	5ax
Overhead : (Net block period for overhead × cost of overhead)	5ax
Profit : (Net block period for profit × profit)	3ax
Expected cash in hand	...
Working Capital	25ax

Application : The annual capacity of X Co. Ltd. is 1,30,000 units. But due to load-shedding the company has been operating at 80% capacity level. From the information given below, you are

required to prepare a Statement showing the Working Capital requirement of the company to finance its current level of operation.

(i) Selling price is ₹ 16 per unit.

(ii) The anticipated ratios of cost to selling price are : Materials—40%, Labour—25% and Overhead—15%.

(iii) Raw materials are expected to remain in store for an average period of 2 months before being issued for production and materials are in process on an average period of $1\frac{1}{2}$ months.

(iv) Finished goods will stay in store approximately for $1\frac{1}{2}$ months before despatch to customers.

(v) Credit allowed to debtors is for a period of $1\frac{1}{2}$ months.

(vi) Credit allowed by creditors is for a period of 2 months.

(vii) Lag in payment of wages and overhead is for a period of 3 weeks.

(viii) Cash in hand is to be maintained at 20% of the Working Capital.

• **Solution ⇒**

(i) Effective Annual Production = $1,30,000 \times \frac{80}{100} = 1,04,000$ units.

∴ Average Weekly Production = $\frac{1,04,000}{52} = 2,000$ units.

(ii) **Analysis of Weekly Sales :**

Items	Per unit ₹		Total ₹	
Raw Materials	₹ 16 × $\frac{40}{100}$	= 6.40	2,000 × 6.40	= 12,800
Labour	₹ 16 × $\frac{25}{100}$	= 4.00	2,000 × 4.00	= 8,000
Overhead	₹ 16 × $\frac{15}{100}$	= 2.40	2,000 × 2.40	= 4,800
Profit (balancing figure)		3.20	2,000 × 3.20	= 6,400
Sales		16.00		32,000

Statement showing for Computation of Net Block Period of each element

Particulars	Materials (Weeks)	Labour (Weeks)	Overhead (Weeks)	Profit (Weeks)
In store	8	—	—	—
In work-in-progress	6	3	3	—
In finished goods	6	6	6	—
Credit to Debtors	6	6	6	6
	26	15	15	6
Less : Credit from Creditors	8	—	—	—
Lag in payment of Wages	—	3	—	—
Lag in payment of Overhead	—	—	3	—
NET BLOCK PERIOD	18	12	12	6

1st Method :

Working Capital Requirement Forecast Statement

Particulars	Period (Weeks)	Total (₹)	Raw-materials (₹)	Work-in-progress (₹)	Finished goods (₹)	Debtors (₹)	Creditors (₹)
1. **Raw materials :**							
In store	8		1,02,400				
In work-in-progress	6			76,800			
In finished goods	6				76,800		
Credit to Debtors	6					76,800	
	26						
Less : Credit from Creditors	8						1,02,400
NET BLOCK PERIOD	18	2,30,400					
2. **Labour :**							
In work-in-progress	3			24,000			
In finished goods	6				48,000		
Credit to Debtors	6					48,000	
	15						
Less : Lag in payment of wages	3						24,000
NET BLOCK PERIOD	12	96,000					
3. **Overhead :**							
In work-in-progress	3			14,400			
In finished goods	6				28,800		
Credit to Debtors	6					28,800	
	15						
Less : Lag in payment of wages	3						14,400
NET BLOCK PERIOD	12	57,600					
4. **Profit :**							
Credit to Debtors	6	38,400				38,400	
Working Capital		4,22,400	1,02,400	1,15,200	1,53,600	1,92,000	1,40,800

Statement showing Net Working Capital Requirement

Particulars	₹
Required Working Capital as per above statement	4,22,400
Add : Expected cash in hand ₹ $\left[4,22,400 \times \frac{20}{80}\right]$	1,05,600
NET WORKING CAPITAL REQUIREMENT	5,28,000

Net Block Period	5x	5ax					
4. **Profit :**							
Credit to Debtors	3x					3ax	
Net Block Period	3x	3ax					
Working Capital		25ax	2ax	3ax	8ax	15ax	3ax
Add : Expected cash in hand		***					
Net Working Capital		25ax					

Second Method ⇒ *Current Assets and Current Liabilities Method*

Working Capital Requirement Forecast Statement

Particulars	*Amount* (₹)	*Amount* (₹)	*Amount* (₹)
CURRENT ASSETS :			
1. **Stock-in-trade :**			
(i) Raw materials *(Average cost of raw materials × storing period)*		2ax	
(ii) Work-in-progress :			
— Raw materials *(Average cost of raw materials × processing period)*	2ax		
— Labour *(Cost of wages × processing period)*	$\frac{1}{2}$ ax		
— Overhead *(Cost of overhead × processing period)*	$\frac{1}{2}$ ax		
		3ax	

(iii) Finished goods :			
— Raw materials (Average cost of raw materials × finished goods storing period)	4ax		
— Labour (Cost of wages × finished goods storing period)	2ax		
— Overhead (Cost of overhead × finished goods storing period)	2ax		
		8ax	
			13ax
2. **Debtors :**			
— Raw materials (Average cost of raw materials × credit period)		6ax	
— Labour (Cost of wages × credit period)		3ax	
— Overhead (Cost of overhead × credit period)		3ax	
— Profit (profit × credit period)		3ax	
			15ax
3. **Expected cash in hand** (if any)			***
Total Current Assets			28ax
Less : CURRENT LIABILITIES :			
1. Outstanding wages (Cost of wages × Lag in payment of wages)		$\frac{1}{2}$ax	
2. Outstanding overhead (Cost of overhead × Lag in payment of overhead)		$\frac{1}{2}$ax	
3. Creditors (Average cost of raw materials × credit period)		2ax	
			3ax
Working Capital			25ax

Third Method ⇒ *Element of Cost Method* :

Working Capital Requirement Forecast Statement

Particulars	₹
Materials : (Net block period for raw materials × cost of raw materials)	12ax
Labour : (Net block period for labour × cost of labour)	5ax
Overhead : (Net block period for overhead × cost of overhead)	5ax
Profit : (Net block period for profit × profit)	3ax
Expected cash in hand	***
Working Capital	